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ABSTRACT

This descriptive study, using a questionnaire survey, determined how computer-based technology was being selected, funded, and utilized in high school library media centers and assessed its impact on library media program. A total of 132 questionnaires were sent (of which 107 questionnaires--81 percent--were completed and returned) to randomly sampled public and private Georgia high school library media specialists. The study found that curriculum needs and technology plans were the main factors in selecting new technology. Technology purchases were funded primarily from local and state funds. The most utilized technologies in schools were telephones, cable television, and computers with CD-ROM drives. Computer-based technology had the greatest impact on the high school media program by providing increased access to more information, increased range of services, and a perceived change in the role of the media specialist. Appendixes include a map, the study questionnaire, and a cover letter. (Contains 21 references.) (GLR)

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UTILIZATION OF COMPUTER-BASED TECHNOLOGY IN HIGH SCHOOL LIBRARY MEDIA CENTERS

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by

Jacqueline T. Auerbach

A SCHOLARLY STUDY

Presented in Partial Fulfillment of Requirements for
the Degree of Specialist in Education in Library
Media Technology in the Department
of Curriculum and Instruction
in the College of Education
Georgia State University

Atlanta, Georgia

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TABLE OF CONTENTS

CHAPTER		PAGE
1	Introduction	1
	Overview	1
	Statement of the Problem	3
	Significance of Study	4
	Assumption/Limitations	5
	Definition of Terms	6
2	Review of Literature	7
	Selection and Utilization of Technology	7
	Impact of Computer-based Technology	13
	Demographics and the Level of Technology	15
	Summary	16
3	Methodology and Procedures	18
	Population	18
	Instrumentation	19
	Data Collection	20
	Data Analysis	21
4	Results	22
	Research Question 1	23
	Research Question 2	28
	Research Question 3	30
5	Discussion and Conclusions	32
	Findings	32
	Discussion	33
	Applications	37

REFERENCES 39

APPENDIX A 43

APPENDIX B 45

ABSTRACT

UTILIZATION OF COMPUTER-BASED TECHNOLOGY

IN HIGH SCHOOL LIBRARY MEDIA CENTERS

by

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Purpose

The purpose of this study was to determine how computer-based technology was being selected, funded, and utilized and to assess its impact on the high school library media program.

Methods and Procedures

The study was descriptive, using a questionnaire survey methodology. The population was represented by random sample of public and private Georgia high school library media specialists. One third of the public schools and one half of the private schools were surveyed.

Results

The study found that curriculum needs and technology plans were the main factors in selecting new technology. Technology purchases

were funded primarily from local and state funds. The most utilized technologies in schools were the telephone, cable television, and computers with CD-ROM drives. Computer-based technology had the greatest impact on the high school media program by providing increased access to more information, increased range of services, and a perceived change in the role of the media specialist.

Conclusion

Computers and telecommunication developments have allowed high school media specialists to increase media services and have given students access to more information. Computers with CD-ROM drives were the most popular computer-based technology being utilized in high school media centers.

LIST OF TABLES

TABLE		PAGE
1	Survey Response	22
2	Number One Reasons for New Technology Purchases	23
3	Existing Technology Committees/Plans	24
4	Technology Funding	25
5	Utilization of Technology	27
6	Impact of Technology	29
7	Technology and Demographics	31

CHAPTER 1

Introduction

Overview

President Bush released America 2000: An Education Strategy on April 18, 1991. In this report, he refers to the Information Age as changing the way our society will be educated if it is to be internationally competitive (U.S. Department of Education, 1991, p.60). A national educational goal was adopted by the President to have "every adult American to be literate and to possess the knowledge and skills necessary to compete in a global economy by the year 2000" (U.S. Department of Education, 1991, p.64).

The Secretary's Commission on Achieving Necessary Skills (SCANS) was appointed in May, 1990, by the Secretary of Labor to talk to businesses to determine what skills young people needed to succeed in the world of work. After twelve months of interviews, the commission

came to the conclusion that "good jobs depend on people who can put knowledge to work" (U.S. Department of Labor, 1991, p.v.). The report identified five competencies that are needed by all American high school students if they are to enjoy a productive and satisfying life. The competency that relates to the school library media center programs deals directly with information. It includes the ability of an effective worker to use computers to process information and to acquire, evaluate, organize, maintain, interpret, and communicate information (U.S. Department of Labor, 1991, p.vii).

At the White House Conference on Library Information Services (WHCLIS) in July, 1991, the President said, "Information is a democracy's greatest and surest weapon and the world's greatest and surest hope" (WHCLIS, 1991, p.iv). The report states that "today's 'knowledge worker'... must be prepared with lifelong learning habits" and have "access to relevant information" (WHCLIS, 1991, p.5). To produce a competitive work force in a global market,"the explosion of innovative technology, accompanied by the rapid information...fostered

by that technology," can meet the challenge of the twenty-first century (WHCLIS, 1991, p.3).

Education faces many obstacles in our rapidly changing society of a social, economic, and technology oriented world. A greater reliance for our world's future is based on information and information technology. School library media specialists have the opportunity to participate in the utilization and planning of technology for students.

Statement of the Problem

Information is now considered a resource. To be productive in the Information Age, "collection, preservation, and retrieval of information in a timely and useful form for the end user is a major goal" for educators (WHCLIS, 1991, p.5). The mission of the school library media program as stated in the publication Information Power: Guidelines for School Library Media Programs (1988) is to ensure that students are effective users of ideas and information. Specific objectives of the mission present two technology challenges to the school library media specialist: "to provide leadership and expertise in the use of information and instructional technology" (p.10) and "to participate in

networks that enhance access to resources located outside the school" (p.12).

The twentieth century has spawned new ways to store information. The integration of technology in the library media center is necessary for accessing information in the 1990's and the next century. The purpose of this study was twofold: to determine how computer-based technology was being utilized in the school library media center and to assess the impact of computer-based technology on the school library media program. Questions this study will attempt to answer are:

1. How is technology presently being selected, funded, and utilized?
2. What impact has computer-based technology had on the high school media program?
3. What relationships exist between certain demographics and the level of a school's technology?

Significance of the Study

The current role of the school library media specialist can be divided into two broad areas: an educational area concerned with teaching

students information retrieval skills and a management or administrative area concerned with the operations of the media center. Technology is a tool that can support both areas for the school library media specialist. This study could provide information on the extent to which computer-based technology is being used in these areas.

The continuous mounting of information and knowledge, the greater access to more information, the higher costs of technology, and cuts in budgets make it necessary for media specialists to study, plan, and be selective when making technology purchases. This study will collect data showing technology trends presently being implemented in high school media centers. Hindes and King (1990) state that "surveying the present level of technology in schools is a first step in meeting the challenge of change" (p. 3). Factors in the study will include methods of selection and funding. The data collected could also show if there are demographic technology inequities.

Assumptions/Limitations

It was assumed that high school library media specialists were already using some computer-based technology.

Definition of Terms

Computer-based technology is the technology that has emerged from the integration of previous technologies. This includes communication technologies (telephone, satellites, facsimile transmission, and fiber optics) as well as data storage technologies (computer tapes, floppy disks, and optical storage).

CHAPTER 2

Review of the Literature

In this review, the literature is divided into three main areas: (a) how technology is presently being selected and utilized in the school library media center, (b) the impact of computer-based technology on the school library media program, and (c) what relationships exist between certain demographics and the level of a school's technology.

Selection and Utilization of Technology

In Miller and Shontz's (1991) study of public and private school media expenditures in the United States, a "steady escalation of the use of microcomputers for management and program development" was found (p.32). Their 1989-1990 survey included questions to library media specialists about the "availability of online bibliographic and technical services, the availability and use of microcomputers, and information on networking" (Miller & Shontz, 1991, p.33). Media specialists were asked about their role in school planning, policy development, and curriculum implementation. Results of the survey showed that Southern schools "have the smallest book collections and the

largest audiovisual collection" (p. 38). Library media specialists in small schools with under 300 students spend more per pupil on resources than any of the larger schools. The report showed that media specialists were spending more money on microform and microcomputer software collections. The data collected showed that 59% of those responding were using cable television; 70% of the high schools had telephones; and 68% of them were members of a network (Miller & Shontz, 1991, p.39-40). A survey they did two years earlier showed a marginal increase in the use of databases and CD-ROM. A small number of media specialists had access to facsimile (FAX) machines. There was a steady increase of online public access catalogs (OPAC) and microcomputers used for circulation, acquisitions, cataloging, and overdue notices.

Hindes, King, and Bowie (1990) surveyed Georgia school media centers for the Department of Instructional Technology at the University of Georgia to find what hardware and software were being used to accomplish various management functions (p.2). Over 1700 questionnaires were mailed to public school media centers statewide. There was a 48% return rate. The survey indicated that media

specialists were cautious about spending money on automation systems and were confused about purchasing the best system to fit their needs. Those using microcomputers at the time of the survey used them mainly for overdues and correspondence. Over half of them used microcomputers to generate bibliographies and to create graphics. Of those responding, only 13.62% were totally automated. Many schools were in the process of choosing an integrated automation system. CD-ROM technology was not being implemented by very many schools. Newspaper and magazine indexes were the most popular CD-ROM programs being used.

The Miller and Shontz (1991) survey showed that cable television was the most frequently used of the electronic technologies (p. 39). Cable companies are granted territories from local governments. Because cable companies are monopolies, they sign franchise agreements with the local governments in return for free services. Usually one agreement is free cable services for all the public schools within the cable company's territory. Specific services will be listed in the franchise agreement. Most cable companies will agree to a single free

cable drop in one room. Many schools will have the cable dropped in the library media center and attach the cable permanently to a VCR for closed circuit use and taping off the air. Cable television technology can be available to everyone for very little money. CNN News is one cable network that allows schools with access to a telephone line, modem, and a computer to print daily curriculum guides for classroom discussions of their fifteen minute CNN Newsroom program which is broadcast in the early morning hours weekdays and taped by participating schools.

In areas where cable is not available, Toch (1991) notes that "satellite technology is spawning...'distance learning'" (p. 77). A student in Georgia can learn Japanese from a teacher at a distance learning network in another state. Distance education uses satellites, audiographics, microwaves, coaxial cables, computers, and fiber optics. These networks provide teachers and courses for students in rural areas. About 85% of the nation's public high schools access television through cable (Toch, 1991, p.77). With the use of satellites, some of the cable programs viewed in high schools include Whittle Communications'

Channel One, CNN News, C-Span, the Weather Channel, the Discovery Channel, and the Arts and Entertainment Network.

The computer-based technology that is now popular is CD-ROM (compact disk-read only memory). It was introduced in January, 1985, as a method to store large amounts of library information (Zink, 1990, p. 51). Zink (1990) states that "a single 4.72 CD-ROM is capable of storing nearly 600 megabytes (275,000 pages) of data" (p. 51). Cahners Research did a CD-ROM market study of public libraries, college and university libraries, and special libraries (Berry, 1992, 45). The study revealed that the most popular CD-ROM programs were bibliographic databases, and they were replacing paper and print products (Berry, 1992, p. 45-46). CD-ROM technology provides quick access to information using keyword and Boolean searching. Often, a CD-ROM search will produce information that a researcher may never find when searching in books and magazines.

Telecommunication is the technology of communication by electronic transmission. Information can be accessed from any location. Fiber optic networks have revolutionized data transmission through telephone

lines. Schwartz (1992) states that "the pure-glass filaments in the cable can carry much more data (in the form of light pulses), at a higher speed, than conventional wire" (p. 56). School library media centers having access to a telephone line, a modem, and a computer have a world of information available to their students in online information services. Databases, including newspapers, magazines, and wire services, are available at educational subscription rates. Having large amounts of information available is reshaping research and the way students learn. Information is "being restructured and facilitated by the use of effective multimedia technology" (Wilson, 1992, p. 12). Wilson (1992) defines multimedia as a "computer-managed system for instruction and research that can incorporate text, database retrieval services, audio graphics and video with media authoring capabilities" (p. 12). Equipment needed for multimedia technology includes a monitor and a microcomputer interfaced with a laserdisc and a CD-ROM drive. Interactive video from a laserdisc allows the learner to access information quickly and with quality images (Wilson, 1992, p. 12).

Impact of Computer-based Technology

Miller (1991) says that "probably no part of the local school has changed as drastically over the past forty years as the school library" (p. 77). Media specialists are becoming information access managers. Access options are communication technologies which include networking with computers, the telephone, and fax machines. The future of the school library media center in the information age will be "based more on images, sounds, and facts stored in databases" (Seiler, Surprenant, 1991, p. 29). Seiler and Surprenant (1991) predict that "the digital medium is so powerful that during the next century it will all but eradicate its competitors--analog, print, handwriting, and hand drawing" (p. 29). When information is transformed to digital form, it can be "created, captured, stored, manipulated, and communicated more usefully and less expensively than by any other means" (Seiler, Surprenant, 1991, p. 29).

Technology is here to stay. Automation of the school library media center has streamlined routine library procedures, provided more accurate statistics and reports, and has allowed quick and easy searching

of databases. Card catalogs are being replaced by computer terminals. Books are being transferred to CD-ROM databases. With barcodes on books, there is no need for check-out cards. Local area networks provide access to online catalog databases. A computer and a modem allow access to distant resources.

Two results that Bankhead (1991) has seen from students using electronic indexes is "an increase in achievement and a decrease in frustration" (p. 49). At Cherry Creek High School in Englewood, Colorado, advanced students as well as at-risk students meet with success when accessing CD-ROM information (Bankhead, 1991, 49). CD-ROM provides the advanced student with "more sophisticated search techniques" (Bankhead, 1991, p. 49). The at-risk students and students with learning disabilities find searches are easier for them in electronic form, and there can be seen "a new equality with other students" (Bankhead, 1991, p. 49).

Some of the drawbacks to CD-ROM include the cost of the hardware and the programs; its slow access to data; licensing agreements for networking; and problems with security and viruses. Another

disadvantage of CD-ROM is that only one student at a time can access information. To solve this problem, schools are installing software and hardware and connecting them to computers, printers, and other devices in what is called a local area network (LAN). Networking allows access to information from many sources in different locations at the same time. Molettiere (1991) states that "each LAN contains a network operating system, software, file server, workstations, cabling and network interface cards"...and "allows file sharing, application storage and sharing, electronic mail, and dial-in remote access from home" (p. 40).

Demographics and the Level of Technology

Schools are being measured by the quality and quantity of their information resources. Olson (1992) reports that "over 91% of all school districts have at least some computers," and "the current ratio of students to computers is about 20 to 1" (p. 20). Most schools do not have enough computers to make them a central part of the curriculum. Two problems schools face are lack of funds and equity in equipment. Olson (1992) states that "what equipment exists is distributed unevenly, with technology less available to minority students, those who speak

limited English, and children from poor communities" (p.20). Robert Anderson (1992) refers to social conditions as the "environmental framework within which children grow up and schools are obliged to function" (p. 8). Schools and communities which are economically viable can provide more resources for children.

Summary

Eisenberg (1990) recognizes and accepts the fact that when it comes to technology, "there are no constants except change" (p.140). School library media specialists have within their reach computer-based systems for storing and retrieving full texts, common commands to accomplish a range of tasks, the ability to link with other users, electronic access from distant areas, and the ability to search and browse information resources in different ways. The future of our country depends on students' knowledge of information and how to access that information. Because of technology, information has no boundaries. Virtually every school in the United States has computer-based technology available to them. The school library media specialist can play an important role in our country's future by implementing

instructional technology into the school's curriculum to prepare students better in a dramatically changing world.

CHAPTER 3

Methodology and Procedures

This was a descriptive study using a questionnaire survey methodology. The purpose of the study was to determine how computer-based technology was being utilized and what impact it has had on the high school library media program.

Population

The population was represented by Georgia public and private high school library media specialists. The public high schools were selected by using the Georgia Public Education Directory, 1992. Schools were selected by a stratified random sampling. The state was divided into three areas (see Appendix A). Every third high school was selected within each area: north (54 schools in 53 counties), middle (33 schools in 60 counties), and south (18 schools in 46 counties) for a total of 105 schools.

The sampling frame for the private schools included those schools PK-12 with an enrollment of 400 or more students and high schools with an enrollment of 70 or more students. According to the Georgia CIC State Directory, 1992-93, 52 schools met the sampling criteria. For this study, every other school was selected for a random sampling of 27 private schools.

Instrumentation

A questionnaire was designed to use in the descriptive study. The instrument consisted of questions concerning three areas of technology: selection, funding, and utilization; the impact of technology on the school library media program; and demographics.

The questionnaire was divided into five parts with a total of 43 questions. The questions were specifically designed to address the research questions stated in the study. In most cases, directions were to circle correct answers, making quick response possible.

Selection, funding, and utilization of technology were addressed in parts I, II, and III with questions 1-20. The impact of computer-based technology on the school library media program was addressed in Part

IV with questions 21-38. Part V addressed demographics with questions 39-43.

The instrument was reviewed by media specialists enrolled in the ELMT 885 research class in the fall of 1992. Suggestions were made, and items were revised. A staff member of the Georgia State Computer Center reviewed the instrument and suggested additional changes.

A cover letter, which included the research questions, and a survey were given to six additional media specialists, one in elementary school, one in middle school, and four in high school. They did a field study of the instrument by answering the questions on the survey, and they were asked for suggestions. The survey was revised and declared valid before being mailed to 132 high school library media specialists.

Data Collection

A cover letter and survey instrument (see Appendix B) were mailed to high school library media specialists on January 4, 1993. They were asked to return the completed questionnaire by January 15, 1993. A follow-up survey was mailed on January 19, 1993, to those

who had not responded. To keep track of the respondents, each survey was numbered in the upper right-hand corner.

Data Analysis

Completed questionnaires were taken to the Georgia State Computer Center. With the aid of a consultant, a format for entering the data was determined. The survey responses were analyzed using the Statistical Package in Social Science (SPSS). The statistical data was tabulated into percentages and frequency of responses by the researcher.

CHAPTER 4

Results

The purpose of this study was to determine how computer-based technology was being selected, funded and utilized in the school library media center and to assess the impact of computer-based technology on the school library media program. Technology questionnaires were sent to 132 public and private high school media specialists. A total of 107 (81%) of the survey questionnaires were and returned (Table 1).

Table 1

Survey Responses

Geographical Areas	Number	Returned	Percent
North	54	45	83
Middle	33	29	88
South	18	15	83
Private	27	18	66
Total	132	107	81

Research Question 1

How is technology presently being selected, funded, and utilized? Part I, survey questions 1 and 2, related to the selection of technology. Ninety-eight (59.2%) responded that curriculum needs constituted the number one reason for purchasing new technology (Table 2).

Table 2

Number One Reasons for New Technology Purchases

Criteria	Number	Frequency	Percent
Curriculum Needs	98	58	59.2
Technology Plan	96	18	18.8
User Recommendations	97	8	8.2
Cost	99	8	8.1
Previews	95	4	4.2
Company Reputation	97	2	2.1
Conferences, Exhibits	95	2	2.1
Literature Reviews	97	2	2.1

In question number 2, the results of the survey showed that 65.3% of those responding had a systemwide technology committee, and 57.4% had a systemwide technology plan. School technology committees were found in 45.6% of the schools surveyed. Technology plans were found in 49.5% of the schools (Table 3).

Table 3

Existing Technology Committees/Plans

Committees/Plans	Number	Frequency	Percent
Systemwide Committee	101	66	65.3
Systemwide Plan	101	58	57.4
School Committee	103	47	45.6
School Plan	101	50	49.5

Part II, question 3, related to the funding of technology in high school media centers (Table 4). Participants had seven choices and could respond with as many choices as applied to them. Of those who responded, 86.7% of the schools funded new technology from local

system/state funds. Federal funds (46.7%) and PTA donations (19%) were additional funding sources.

Table 4

Technology Funding

Funding	Frequency N=105	Percent
Local System/State Funds	91	86.7
Federal Funds	49	46.7
PTA	20	19.0
Private Grant	14	13.3
Other (Tuition, Fines, etc.)	14	13.3
Bond Referendums	9	8.6
Endowment	6	5.7

The utilization of computer-based technology was Part III of the questionnaire. It consisted of questions 4 through 20 and asked

participants to respond "yes" or "no" to technology that they utilized (Table 5). Of those responding, 87.7% of the high school media centers had a telephone, 55.2% had a modem. Responses showed that 57.1% of the media specialists had access to a FAX machine. Cable television was in 78.3% of the schools surveyed. About half of the schools had automated circulation systems (58.5%), automated catalogs (47.2%), and computerized management programs(53.3%).

A computer with a CD-ROM drive was in 73.3% of the schools. The most popular CD-ROM program was the encyclopedia (60%). About half of the respondents had a magazine index on CD-ROM. Responses indicated other CD-ROM programs were being utilized in high school media centers. They included social science programs (28.6%), literature programs (26.9%), and science programs (26.7%).

Local area networking (LAN) was in 36.2% of the schools, and less than a third of them had interactive programs (29.5%) and distance learning capabilities (28.3%). Online database services had the lowest response (25.7%).

Table 5

Utilization of Technology

Technology	Number	Frequency	Percent
Telephone	106	93	87.7
Cable Television	106	83	78.3
Computer With CD-ROM Drive	105	77	73.3
CD-ROM Encyclopedia	105	63	60.0
CD-ROM Magazine Index	105	53	50.5
CD-ROM Social Science Program	105	30	28.6
CD-ROM Literature Program	104	28	26.9
CD-ROM Science Program	105	28	26.7
Automated Circulation System	106	62	58.5
Access FAX Machine	105	60	57.1
Modem	105	58	55.2
Computerized Management System	105	56	53.3
Automated Catalog	106	50	47.2
Local Area Networking(LAN)	105	38	36.2
Interactive Multimedia Program	105	31	29.5
Distance Learning Capability	106	30	28.3
Online Database	105	27	25.7

Research Question 2

What impact has computer-based technology had on the high school media program? Part IV, questions 21 through 38, dealt with the impact of technology on the school library media program (Table 6).

Accessing more information (64.6%) and increasing the range of services (63.5%) had the greatest impact. Ninety-nine respondents (60.6%) indicated that technology had greatly impacted the role of the media specialist. The results of the survey showed that more than two fifths of the media specialists had seen technology make a difference in repetitive and administrative tasks.

Media specialists were asked if technology had made a difference in the use of the media center by advanced students and at-risk students. For advanced students, 37.1% indicated a "great impact." For at-risk students, 26.6% had indicated a "great impact."

Table 6

Impact of Technology

Aspect of Media Program	N	Great Impact (F) %	Some Impact (F) %	No Impact (F) %
Accessing More Information	96	(62) 64.6	(26) 27.1	(8) 8.3
Increasing Range of Services	96	(61) 63.5	(27) 28.1	(8) 8.3
Role of the Media Specialist	99	(60) 60.6	(33) 33.3	(6) 6.1
Repetitive Tasks	96	(48) 50.0	(33) 34.4	(15) 15.6
Less Searching Frustration	95	(46) 48.4	(37) 38.9	(12) 12.6
Mission of the Media Center	98	(47) 48.0	(44) 44.9	(7) 7.1
Administrative Tasks	97	(43) 44.3	(41) 42.3	(13) 13.4
Increased Use-Students	97	(39) 40.2	(45) 46.4	(13) 13.4
Increased Use by Advanced Students	97	(36) 37.1	(41) 42.3	(20) 20.6
Stress on the Job	97	(32) 33.0	(46) 47.4	(19) 19.6
Technical Support	95	(31) 32.6	(43) 45.3	(21) 22.1
More Time to Help Students	97	(29) 29.9	(45) 46.4	(23) 23.7
Increased Use by At-risk Students	94	(25) 26.6	(42) 44.7	(27) 28.7
Funding	97	(25) 25.8	37 (38.1)	(35) 36.1
Increased Use-Faculty	97	(23) 23.7	(47) 48.5	(27) 27.8
Inservice/Staff Development Training	98	(23) 23.5	(57) 58.2	(18) 18.4
Accessing Resources Outside School	97	(21) 21.6	(45) 46.4	(31) 32.0
Purchasing of Print Materials	98	(19) 19.4	(52) 53.1	(27) 27.6

Research Question 3

What relationships exist between certain demographics and the level of a school's technology? Table 7 lists the six technology uses where there were significant differences in the areas surveyed. A greater number of southern schools (73.3%) and northern schools (71.1%) in the state were using an automated circulation system. Northern schools were utilizing more technology in five of the following areas: computerized management programs (70.5%), modems (68.9%), online databases (40%), local area networks (51.1%), and CD-ROM magazine indexes (71.1%).

Table 7

Technology and Demographics

Technology Utilization	North	Middle	South	Private
Automated Circulation System	71.1	55.2	73.3	17.6
Management Programs	70.5	44.8	46.7	29.4
Modem	68.9	53.6	46.7	29.4
Online Database	40.0	14.3	6.7	23.5
Local Area Networking	51.1	21.4	26.7	29.4
CD-ROM Magazine Index	71.1	35.7	26.7	41.2

CHAPTER 5

Discussion and Conclusions

Findings

In regard to the questions this study was intended to answer, it can be concluded that:

Curriculum needs and technology plans are the main factors in the selection of technology purchases by media specialists. Technology purchases are funded primarily with local system, state, and federal funds. More schools are utilizing the telephone, cable television, and computers with CD-ROM drives than any other technology.

Computer-based technology has had the greatest impact on the high school media program by providing access to more information and by increasing the range of services. Also, it has changed the perceived role of the media specialist.

Schools located in the northern section of the state are utilizing computerized management programs, modems, online databases, local area networks, and CD-ROM magazine indexes more than the middle and southern areas of the state and private schools.

Discussion

Hindes, King, and Bowie (1990) indicated that media specialists were cautious about spending money on automation systems, and most microcomputers at that time were used for overdues and correspondence. This study found that over half of the school media centers surveyed had automated circulation and computerized management systems. A little less than half of those surveyed had automated catalogs. Purchasing state-of-the-art hardware and software with limited funds is a major problem for school media specialists. This study found that the majority of the funds available for new technology was allocated from local and state funds. About half of the schools surveyed had access to federal funds. Some schools had financial support from the PTA and private grants. Private schools budgeted money for technology from the tuition

of the students. Several schools had purchased computers and software from grocery store programs.

The review of the literature indicated the numerous choices of technology that are available for school library programs. This study revealed that over half of the media specialists purchased new technology according to what was needed to support the curriculum. A technology plan was the next reason media specialists gave for purchasing new technology. Approximately half of the school library media specialists participating in the study indicated that they had systemwide and local school committees and plans. Technology plans provide a vision for the future.

Miller and Shontz (1991) reported that almost three fourths of the high school media centers had telephones, and only a small number of media specialists had access to facsimile (FAX) machines. More than three fourths of the schools surveyed in this study had telephones, and over half of them had access to a FAX machine. Also, over half of them had a modem, but only one fourth of those surveyed used the telephone and modem for online searching.

After the telephone, cable television was the most frequently used electronic technology. Toch (1991) stated that 85% of the nation's public high schools accessed television through cable. Only 78.3% of the high schools in this survey used cable television, and less than a third had distance learning capabilities. About a third of those surveyed had interactive multimedia programs and used local area networking.

A wealth of information can be accessed quickly from CD-ROM technology. In the survey by Hindes, King, and Bowie, CD-ROM technology was not being implemented by very many schools. Newspapers and magazine indexes were the most popular CD-ROM programs being used. This study found that almost three fourths of the high schools had computers with CD-ROM drives. The most popular CD-ROM program was the encyclopedia. Half of the schools had a magazine index on CD-ROM, and nearly a third of the schools had social science, literature, and science programs on CD-ROM. The survey instrument did not list CD-ROM newspaper indexes as a choice.

The utilization of technology has revolutionized the school library media program. The greatest impact of technology on the media program

has been the increasing access to information, the increasing range of services, and the changing role of the media specialist. Repetitive tasks, fewer searching frustrations, the mission of the media center, and administrative tasks have been greatly impacted by the utilization of technology in the school media program.

Bankhead (1991) had reported that advanced students and at-risk students met with more success when using CD-ROM products. A third of the media specialists surveyed had seen technology having a great impact on advanced students, and a fourth of them had seen increased use by at-risk students.

When the northern, middle, and southern areas of the state and the private schools were compared in their use of technology, the study revealed that the high schools in the north utilized more computerized management programs, modems, online databases, local area networks, and CD-ROM magazine indexes. Southern schools had the highest percentage of automated circulation systems. The CD-ROM magazine index was the most popular technology being used in private schools.

Private schools tended to be small and not have the resources to incorporate technology into the media program.

Technology and its uses are becoming more specialized. More and more schools are budgeting for the purchase of technology. Surveys on technology use can provide up-to-date trends and provide insights into its uses.

Applications

Technology is changing the way we access information. The media specialist, the media center, and the incorporation of technology into the media center program can provide the central elements necessary for ensuring that students are effective users of ideas and information for the 1990's and the next century. Technology and its uses are becoming more specialized. Technology supports the role of the media specialist in teaching students retrieval skills and managing the administrative operations of the media center. This study provides information on the extent to which computer-based technology is being used in both areas.

Technology trends presently being implemented in high schools are shown in the study. Hindes and King (1990) remind us that to meet

the challenge of change, one must survey the present level of a school's technology (p. 3).

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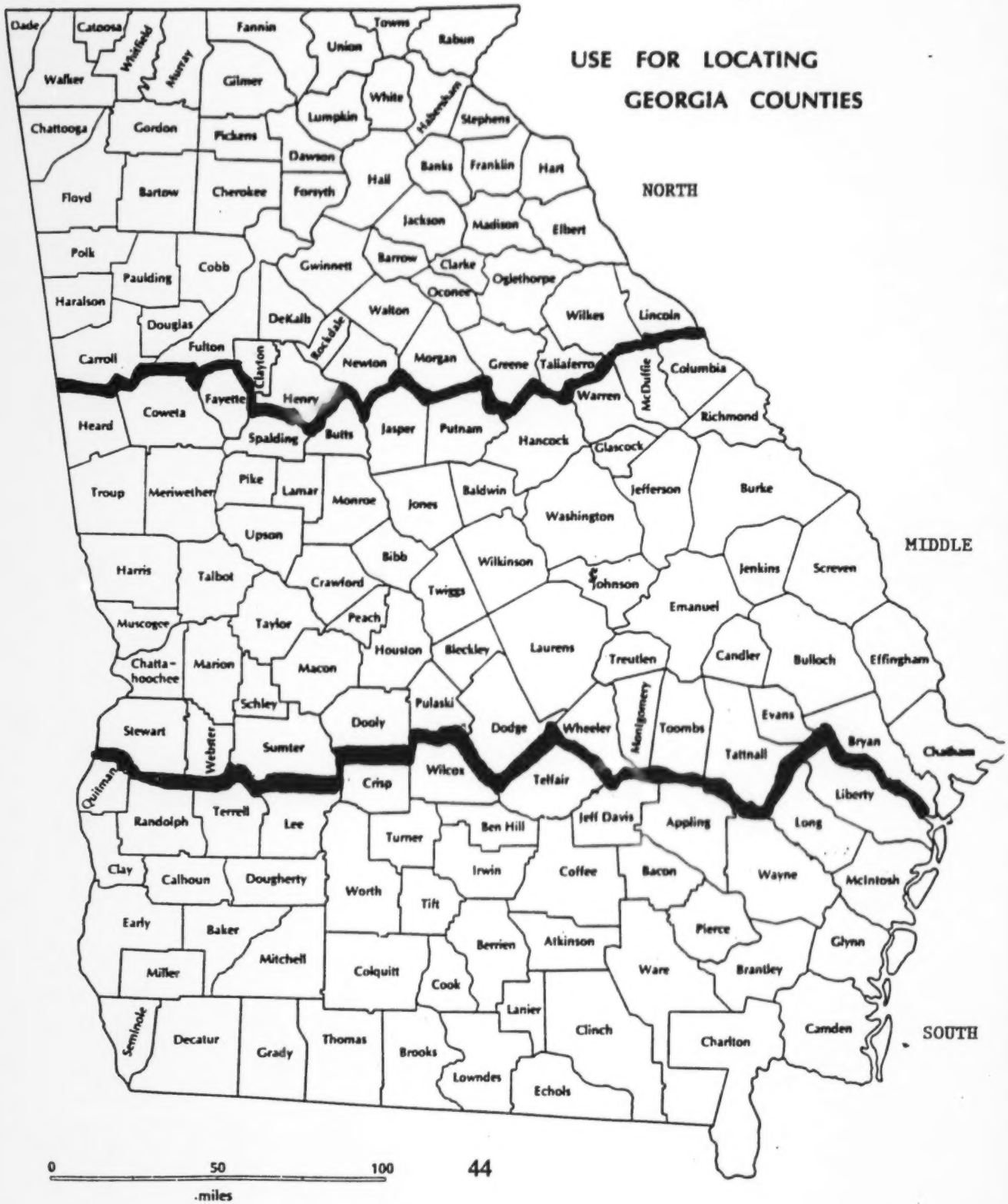
APPENDIX A

Map


USE FOR LOCATING
GEORGIA COUNTIES
NORTH
MIDDLE
SOUTH
Dade
Catoosa
Whitfield
Murray
Fannin
Union
Towns
Rabun
Walker
Gilmer
White
Habersham
Stephens
Lumpkin
Chattooga
Gordon
Pickens
Dawson
Hall
Banks
Franklin
Hart
Floyd
Bartow
Cherokee
Forsyth
Jackson
Madison
Elbert
Polk
Paulding
Cobb
Gwinnett
Barrow
Clarke
Oglethorpe
Oconee
Haralson
Douglas
DeKalb
Walton
Wilkes
Lincoln
Carroll
Fulton
Clayton
Rockdale
Newton
Morgan
Greene
Taliaferro
McDuffie
Columbia
Fayette
Henry
Warren
Heard
Coweta
Spalding
Butts
Jasper
Putnam
Hancock
Richmond
Glascock
Troup
Meriwether
Pike
Lamar
Monroe
Jones
Baldwin
Jefferson
Burke
Washington
Upson
Bibb
Wilkinson
Jenkins
Screven
Harris
Talbot
Crawford
Twiggs
Johnson
Emanuel
Muscogee
Taylor
Peach
Houston
Bleckley
Laurens
Treutlen
Candler
Bulloch
Effingham
Chatta-
hoochee
Marion
Macon
Schley
Pulaski
Dodge
Wheeler
Montgomery
Toombs
Evans
Bryan
Chatham
Stewart
Webster
Sumter
Dooly
Wilcox
Telfair
Tattnall
Quitman
Crisp
Liberty
Randolph
Terrell
Lee
Turner
Ben Hill
Jeff Davis
Appling
Long
Clay
Calhoun
Dougherty
Worth
Irwin
Coffee
Bacon
Wayne
McIntosh
Tift
Early
Baker
Berrien
Atkinson
Pierce
Glynn
Miller
Mitchell
Colquitt
Cook
Ware
Brantley
Seminole
Decatur
Grady
Thomas
Brooks
Lanier
Clinch
Charlton
Camden
Lowndes
Echols
0
50
100
miles
44

APPENDIX B

Letter and Questionnaire

January 4, 1993

Dear Colleague:

I am conducting a study on the utilization of technology in Georgia high school media centers as part of my six-year program at Georgia State University. To complete this study, I am asking high school library media specialists to respond to the enclosed questionnaire. The data from the survey will provide information on the extent to which computer-based technology is being selected, funded, and utilized in high school library media centers and what impact it has had on the school library media program.

You do not have to put your name on the questionnaire. All answers will be confidential. The coding on the questionnaire is for record keeping.

I would appreciate it if you would complete the questionnaire and return it to me by Friday, January 15. A stamped self-addressed envelope is provided for you.

Thank you for participating in the study.

Sincerely,

Jacqueline T. Auerbach
Media Specialist
Walton High School

Enclosure

TECHNOLOGY QUESTIONNAIRE

Part I. SELECTION

1. When purchasing new technology for your library media center, what criteria determine your decision? (Prioritize the order of importance with number 1 being your first choice and number 8 being your last choice.)

___ COMPANY REPUTATION	___ LITERATURE REVIEWS
___ CONFERENCES, EXHIBITS	___ PREVIEWS
___ COST	___ USER RECOMMENDATION
___ CURRICULUM NEEDS	___ TECHNOLOGY PLAN

2. Do you have the following: (Circle answer.)

Systemwide technology committee	1 NO 2 YES
Systemwide technology plan	1 NO 2 YES
School technology committee	1 NO 2 YES
School technology plan	1 NO 2 YES

Part II. FUNDING

3. How has your technology been funded? (Circle all that apply.)

A LOCAL SYSTEM/STATE FUNDS	E ENDOWMENT
B FEDERAL FUNDS	F PTA
C BOND REFERENDUM FUNDS	G OTHER (PLEASE
D PRIVATE GRANT	EXPLAIN BELOW)

Part III. UTILIZATION

Do you have the following: (Circle response.)

4.	Automated circulation system	1 NO 2 YES
5.	Automated catalog	1 NO 2 YES
6.	Computerized management programs	1 NO 2 YES
7.	Cable television	1 NO 2 YES
8.	Distance learning capability	1 NO 2 YES
9.	Telephone	1 NO 2 YES
10.	Modem	1 NO 2 YES
11.	Online database (Dialog, BRS, etc.)	1 NO 2 YES
12.	Access to a FAX machine	1 NO 2 YES
13.	Local Area Networking (LAN)	1 NO 2 YES
14.	Interactive multimedia program	1 NO 2 YES
15.	Computer with CD-ROM drive	1 NO 2 YES

16.	CD-ROM magazine index	1 NO 2 YES
17.	CD-ROM encyclopedia	1 NO 2 YES
18.	CD-ROM social science program	1 NO 2 YES
19.	CD-ROM literature program	1 NO 2 YES
20.	CD-ROM science program	1 NO 2 YES

Part IV. IMPACT OF TECHNOLOGY

What impact has computer-based technology had on your school library media program? (Circle the number for the appropriate response.)

1 GREAT IMPACT 2 SOME IMPACT 3 NO IMPACT

21.	Role of the media specialist	1 2 3
22.	Mission of the media center	1 2 3
23.	Stress from the job	1 2 3
24.	Inservice/staff development training	1 2 3
25.	Technical support for automation	1 2 3
26.	Administrative tasks	1 2 3
27.	Providing more time to help students	1 2 3
28.	Accessing more information	1 2 3
29.	Providing less searching frustrations	1 2 3
30.	Increasing range of services	1 2 3
31.	Repetitive tasks	1 2 3
32.	Increased media center use-students	1 2 3
33.	Increased media center use-faculty	1 2 3
34.	Media center use by at-risk students	1 2 3
35.	Media center use by advanced students	1 2 3
36.	Funding	1 2 3
37.	Purchasing of print materials	1 2 3
38.	Accessing resources outside school	1 2 3

Part V. DEMOGRAPHICS

39. In what county is your school located? _____
40. Student population (Grades 9-12) _____
41. Staff number: MEDIA SPECIALISTS _____
PARAPROFESSIONALS _____

(Circle your answer.)

42. School system: 1 CITY 2 COUNTY 3 PRIVATE
43. Location: 1 LARGE CITY (100,000 and above)
2 SUBURB OF CITY
3 SMALL TO MEDIUM SIZED CITY (15,000-99,999)
4 RURAL AREA (under 15,000)